

PART 8

Provisions for vessel crews, equipment, operation and documentation

CHAPTER 8.1

GENERAL REQUIREMENTS APPLICABLE TO VESSELS AND EQUIPMENT

8.1.1 *(Reserved)*

8.1.2 Documents

8.1.2.1 In addition to the documents required by other regulations, the following documents shall be kept on board:

- (a) The vessel's certificate of approval referred to in 8.1.8;
- (b) Transport documents referred to in 5.4.1 for all dangerous goods on board and, where necessary the container packing certificate (see 5.4.2);
- (c) The instructions in writing prescribed in 5.4.3;
- (d) A copy of the ADN with the latest version of its annexed Regulations which may be a copy which can be consulted by electronic means at any time;
- (e) The inspection certificate of the insulation resistance of the electrical installations prescribed in 8.1.7;
- (f) The inspection certificate of the fire-extinguishing equipment and fire-hoses prescribed in 8.1.6.1;
- (g) A book in which all required measurement results are recorded;
- (h) A copy of the relevant text of the special authorizations referred to in 1.5 if the transport operation is performed under this/these special authorization(s);
- (i) Means of identification, which include a photograph, for each crew member, in accordance with 1.10.1.4; and
- (j) The checklist or a certificate showing the result of the check drawn up by the competent authority which carried it out, referred to in 1.8.12. The most recent list or certificate shall be kept on board.

8.1.2.2 In addition to the documents prescribed in 8.1.2.1, the following documents shall be carried on board dry cargo vessels:

- (a) The loading plan prescribed in 7.1.4.11;
- (b) The ADN specialized knowledge certificate prescribed in 8.2.1.2;
- (c) For vessels complying with the additional requirements for double-hull vessels:
 - a damage-control plan;
 - the documents concerning intact stability as well as all conditions of intact stability taken into account for the damaged stability calculation in a form the master understands;
 - the certificate of the classification society (see 9.1.0.88 or 9.2.0.88).

- 8.1.2.3 In addition to the documents prescribed in 8.1.2.1, the following documents shall be carried on board tank vessels:
- (a) The cargo stowage plan prescribed in 7.2.4.11.2;
 - (b) The ADN specialized knowledge certificate prescribed in 7.2.3.15;
 - (c) For vessels which have to conform to the conditions of damage-control (see 9.3.1.15, 9.3.2.15 or 9.3.3.15)
 - a damage-control plan;
 - the documents concerning intact stability as well as all conditions of intact stability taken into account for the damaged stability calculation in a form the master understands;
 - (d) The documents concerning the electrical installations prescribed in 9.3.1.50, 9.3.2.50 or 9.3.3.50;
 - (e) The classification certificate prescribed in 9.3.1.8, 9.3.2.8 or 9.3.3.8;
 - (f) The flammable gas detector certificate prescribed in 9.3.1.8.3, 9.3.2.8.3 or 9.3.3.8.3;
 - (g) The certificate listing all dangerous goods accepted for carriage in the vessel, referred to in 1.11.1.2.5;
 - (h) The inspection certificate for the pipes for loading and unloading prescribed in 8.1.6.2;
 - (i) The instructions relating to the loading and unloading flows prescribed in 9.3.2.25.9 or 9.3.3.25.9;
 - (j) The inspection certificate for the stripping installation prescribed in 8.6.4.2;
- NOTE: It is not necessary to apply this paragraph. The date of application will be defined later.*
- (k) In the event of the carriage of goods having a melting point $\geq 0^{\circ}$ C, heating instructions;
 - (l) The inspection certificate for the pressure relief and vacuum relief valves prescribed in 8.1.6.5, except for open type N tank vessels, or open type N vessels with flame-arresters;
 - (m) The registration document referred to in 8.1.11;
 - (n) For the carriage of refrigerated substances, the instruction required in 7.2.3.28; and
 - (o) The certificate concerning the refrigeration system, prescribed in 9.3.1.27.10.
- 8.1.2.4 The instructions in writing referred to in 5.4.3 shall be handed to the master before loading. They shall be kept readily at hand in the wheelhouse.
- On board dry cargo vessels, the transport documents shall be handed to the master before loading and on board tank vessels they shall be handed to him after loading.
- 8.1.2.5 (*Reserved*)

- 8.1.2.6 The presence on board of the certificate of approval is not required in the case of pusher barges which are not carrying dangerous goods, provided that the following additional particulars are indicated, in identical lettering, on the metal plate furnished by CEVNI:

Number of the certificate of approval: ...
issued by: ...
valid until: ...

The barge-owner shall thereafter keep the certificate of approval in his possession.

The similarity of the particulars on the plate and those contained in the certificate of approval shall be certified by a competent authority which shall affix its stamp to the plate.

- 8.1.2.7 The presence on board of the certificate of approval is not required in the case of dry cargo barges or tank barges carrying dangerous goods provided that the metal plate furnished by CEVNI is supplemented by a second metal plate reproducing by photo-optical means a copy of the entire certificate of approval.

The barge-owner shall thereafter keep the certificate of approval in his possession.

The similarity of the particulars on the metal plate and the certificate of approval shall be certified by a competent authority which shall affix its stamp to the plate.

- 8.1.2.8 All documents shall be drawn up in a language the master is able to read and understand and if that language is not English, French or German, in English, French or German unless agreements concluded between the countries concerned in the transport operation provide otherwise.

- 8.1.2.9 8.1.2.1 (b), 8.1.2.1 (g), 8.1.2.4 and 8.1.2.5 do not apply to oil separator vessels or supply vessels. 8.1.2.1 (c) does not apply to oil separator vessels.

- 8.1.3 (*Reserved*)

8.1.4 Fire-extinguishing arrangements

In addition to the fire-extinguishing appliances prescribed in the Regulations referred to in 1.1.4.6, each vessel shall be equipped with at least two additional hand fire-extinguishers having the same capacity. The fire-extinguishing agent contained in these additional hand fire-extinguishers shall be suitable for fighting fires involving the dangerous goods carried.

8.1.5 Special equipment

- 8.1.5.1 Insofar as the provisions of Chapter 3.2, Tables A or C require, the following equipment shall be available on board:

PP: for each member of the crew, a pair of protective goggles, a pair of protective gloves, a protective suit and a suitable pair of protective shoes (or protective boots, if necessary). On board tank vessels, protective boots are required in all cases;

EP: a suitable escape device for each person on board;

EX: a flammable gas detector with the instructions for its use;

TOX: a toximeter with the instructions for its use;

A: a breathing apparatus ambient air-dependent;

8.1.5.2 (Reserved)

8.1.5.3 For pushed convoys or side-by-side formations under way, it shall be sufficient, however, if the pusher tug or the vessel propelling the formation is equipped with the special equipment referred to in 8.1.5.1 above, when this is required in Chapter 3.2, Tables A or C.

8.1.6 Checking and inspection of equipment

8.1.6.1 The fire-extinguishing appliances and hoses shall be inspected at least once every two years by persons authorized for this purpose by the competent authority. Proof of inspection shall be affixed to the fire-extinguishing appliances. A certificate concerning this inspection shall be carried on board.

8.1.6.2 Hoses and hose assemblies used for loading, unloading or delivering products shall comply with European standard EN 12115:1999 (Rubber and thermoplastics hoses and hose assemblies) or EN 13765:2003 (Thermoplastic multilayer (non-vulcanized) hoses and hose assemblies) or EN ISO 10380:2003 (Corrugated metal hoses and hose assemblies). They shall be checked and inspected in accordance with table 6 of standard EN 12115:1999 or table K.1 of standard EN 13765:2003 or paragraph 7 of standard EN ISO 10380:2003 at least once a year, according to the manufacturer's instructions, by persons authorized for this purpose by the competent authority. A certificate concerning this inspection shall be carried on board.

8.1.6.3 The special equipment referred to in 8.1.5.1 and the gas detection system shall be checked and inspected in accordance with the instructions of the manufacturer concerned by persons authorized for this purpose by the competent authority. A certificate concerning this inspection shall be carried on board.

8.1.6.4 The measuring instruments prescribed in 8.1.5.1 shall be checked each time before use by the user in accordance with the instructions for use.

8.1.6.5 The pressure relief and vacuum relief valves prescribed in 9.3.1.22, 9.3.2.22, 9.3.2.26.4, 9.3.3.22 and 9.3.3.26.4 shall be inspected on each renewal of the certificate of approval by the manufacturer or by a firm approved by the manufacturer. A certificate concerning this inspection shall be carried on board.

8.1.6.6 The stripping system referred to in 9.3.2.25.10 or 9.3.3.25.10 shall be subjected to a water test before its first use or after a modification. The test and the establishment of the residual quantities shall be carried out in accordance with the provisions of 8.6.4.2. The certificate concerning the test referred to in 8.6.4.3 shall be carried on board.

NOTE: It is not necessary to apply this paragraph. The date of application will be defined later.

8.1.7 Electrical installations

The insulation resistance of the electrical installations, the earthing and the certified safe type electrical equipment and the conformity of the documents required in 9.3.1.50.1, 9.3.2.50.1 or 9.3.3.50.1 with the circumstances on board shall be inspected whenever the certificate of approval is renewed and, in addition, within the third year from the date of issue of the certificate of approval by a person authorized for this purpose by the competent authority. An appropriate inspection certificate shall be kept on board.

8.1.8 Certificate of approval

8.1.8.1 Dry cargo vessels carrying dangerous goods in quantities greater than exempted quantities, the vessels referred to in 7.1.2.19.1, tank vessels carrying dangerous goods and the vessels referred to in 7.2.2.19.3 shall be provided with an appropriate certificate of approval.

8.1.8.2 The certificate of approval shall attest that the vessel has been inspected and that its construction and equipment comply with the requirements of these Regulations.

8.1.8.3 The certificate of approval shall be issued in accordance with the requirements and procedures set out in Chapter 1.16.

It shall conform to the model in 8.6.1.1 or 8.6.1.3.

For tank vessels, the relief pressure of the safety valves or of the high-velocity vent valves shall be entered in the certificate of approval.

If a vessel has cargo tanks with different valve opening pressures, the opening pressure of each tank shall be entered in the certificate of approval.

NOTE: *For procedures concerning:*

- *the issue of certificates: see 1.16.2;*
- *the application for issue of certificates: see 1.16.5;*
- *the amendments to be made to the certificate of approval: see 1.16.6;*
- *the presentation of the vessel for inspection: see 1.16.7;*
- *the first inspection (if the vessel does not yet have the certificate of approval or if the validity of the certificate of approval expired more than six months ago): see 1.16.8;*
- *the special inspection (if the vessel's hull or equipment has undergone alterations liable to diminish safety in respect of the carriage of dangerous goods or has sustained damage affecting such safety): see 1.16.9;*
- *the periodic inspection for the renewal of the certificate of approval: see 1.16.10;*
- *the extension of the certificate of approval without an inspection: see 1.16.11;*
- *the right of official inspection by the competent authority of a Contracting Party: see 1.16.12;*
- *the withholding and return of the certificate of approval: see 1.16.13;*
- *the issue of a duplicate copy: see 1.16.14;*

8.1.8.4 The certificate of approval shall be valid for not more than five years. The date on which the period of validity expires shall be shown on the certificate. The competent authority which issued the certificate may, without inspection of the vessel, extend the validity of the certificate by not more than one year. Such extension may be granted only once within two periods of validity (see 1.16.11).

8.1.8.5 If the vessel's hull or equipment has undergone alterations liable to reduce the safety as regards the carriage of dangerous goods or has sustained damage affecting such safety, the vessel shall undergo a further inspection in (see 1.16.9).

8.1.8.6 The certificate of approval may be withdrawn if the vessel is not properly maintained or if the vessel's construction or equipment no longer complies with the applicable provisions of these Regulations (see 1.16.13).

8.1.8.7 The certificate of approval may only be withdrawn by the authority by which it has been issued.

Nevertheless, in the cases referred to in 8.1.8.5 and 8.1.8.6 above, the competent authority of the State in which the vessel is staying may prohibit its use for the carriage of those dangerous goods for which the certificate is required. For this purpose it may withdraw the certificate until such time as the vessel again complies with the applicable provisions of these Regulations. In that case it shall notify the competent authority which issued the certificate.

8.1.8.8 Notwithstanding 8.1.8.7 above, any competent authority may amend or withdraw the certificate of approval at the request of the vessel's owner, provided that it so notifies the competent authority which issued the certificate.

8.1.9 Provisional certificate of approval

NOTE: *For procedures concerning the issue of certificates, see Chapter 1.16.*

8.1.9.1 For a vessel which is not provided with a certificate of approval, a provisional certificate of approval of limited duration may be issued in the following cases, subject to the following conditions:

- (a) The vessel complies with the applicable provisions of these Regulations, but the normal certificate of approval could not be issued in time. The provisional certificate of approval shall be valid for an appropriate period but not exceeding three months;
- (b) The vessel does not comply with every applicable provisions of these Regulations after sustaining damage. In this case the provisional certificate of approval shall be valid only for a single specified voyage and for a specified cargo. The competent authority may impose additional conditions.

8.1.9.2 The provisional certificate of approval shall conform to the model in 8.6.1.2 or 8.6.1.4 of these Regulations or a single model certificate combining a provisional certificate of inspection and the provisional certificate of approval provided that the single model certificate contains the same information as 8.6.1.2 or 8.6.1.4 and is approved by the competent authority.

8.1.10 Loading journal

NOTE: *It is not necessary to apply this paragraph. The date of application will be defined later.*

All tank vessels shall be provided with a loading journal in accordance with the provisions of the CEVNI. The original of the loading journal shall be kept on board for not less than 12 months after the last entry is made.

The first loading journal shall be issued by the authority which issued the certificate of approval. Subsequent journals may be issued by authorities competent to do so.

8.1.11 Register of operations during carriage relating to the carriage of UN 1203

Tank vessels accepted for the carriage of UN No. 1203 petrol shall have on board a register of operations during carriage. This register may consist of other documents containing the information required. This register or these other documents shall be kept on board for not less than three months and cover at least the last three cargoes.

CHAPTER 8.2

REQUIREMENTS CONCERNING TRAINING

8.2.1 General requirements concerning training of experts

8.2.1.1 An expert shall not be less than 18 years of age.

8.2.1.2 An expert is a person who has a special knowledge of the ADN. Proof of this knowledge shall be furnished by means of a certificate from a competent authority or from an agency recognized by the competent authority.

This certificate shall be issued to persons who, after training, have passed a qualifying ADN examination.

8.2.1.3 The experts referred to in 8.2.1.2 shall take part in a basic training course. Training shall take place in the context of classes approved by the competent authority. The primordial objective of the training is to make the experts aware of the hazards of the carriage of dangerous goods and provide them with the necessary basic knowledge to reduce the dangers of an incident to a minimum, to enable them to take the necessary measures to ensure their own safety, general safety and the protection of the environment and to limit the consequences of the incident. This training, which shall include individual practical exercises, takes the form of a basic course; it shall cover at least the objectives referred to in 8.2.2.3.1.1 and in 8.2.2.3.1.2 or 8.2.2.3.1.3.

8.2.1.4 After five years the expert shall furnish proof, in the form of relevant particulars entered in the certificate by the competent authority or by a body recognized by it, of participation in a refresher course taken in the last year prior to the expiry of the certificate, covering at least the objectives referred to in 8.2.2.3.1.1 and in 8.2.2.3.1.2 or 8.2.2.3.1.3 and comprising current new developments in particular. The new period of validity shall begin on the expiry date of the certificate; in other cases it shall begin on the date of the certificate of participation in the course.

8.2.1.5 Experts for the carriage of gases shall take part in a specialization course covering at least the objectives referred to in 8.2.2.3.3.1. Training shall take place in the context of classes approved by the competent authority. An expert certificate shall be issued to persons who, after training, have successfully passed an examination concerning the carriage of gases and have produced evidence of not less than one year's work on board a type G vessel during a period of two years prior to or following the examination.

8.2.1.6 After five years, the expert for the carriage of gases shall furnish proof, in the form of relevant particulars entered in the certificate by the competent authority or by a body recognized by it,

- that during the year preceding the expiry of the certificate, he has participated in a refresher specialization course covering at least the objectives referred to in 8.2.2.3.3.1 and comprising current new developments in particular, or
- that during the previous two years he has performed a period of work of not less than one year on board a type G tank vessel.

When the refresher specialization training course is taken in the year preceding the date of expiry of the certificate, the new period of validity shall begin on the expiry date of the preceding certificate, but in other cases it shall begin on the date of certification of participation in the course.

8.2.1.7 Experts for the carriage of chemicals shall take part in a specialization course covering at least the objectives referred to in 8.2.2.3.3.2. Training shall take place in the context of classes approved by the competent authority. An expert certificate shall be issued to persons who, after training, have successfully passed an examination concerning the carriage of chemicals and have produced evidence of not less than one year's work on board a type C vessel during a period of two years prior to or following the examination.

8.2.1.8 After five years, the expert for the carriage of chemicals shall furnish proof, in the form of relevant particulars entered in the certificate by the competent authority or by a body recognized by it,

- that during the year preceding the expiry of the certificate, he has participated in a refresher specialization course covering at least the objectives referred to in 8.2.2.3.3.2 and comprising current new developments in particular, or
- that during the previous two years he had performed a period of work of not less than one year on board a type C tank vessel.

When the refresher specialization training course is taken in the year preceding the date of expiry of the certificate, the new period of validity shall begin on the expiry date of the preceding certificate, but in other cases it shall begin on the date of certification of participation in the course.

8.2.1.9 The document attesting training and experience in accordance with the requirements of Chapter V of the STCW Code on Training and Qualifications of Masters, Officers and Ratings of Tankers carrying LPG/LNG shall be equivalent to the certificate referred to in 8.2.1.5, provided it has been recognized by a competent authority. No more than five years shall have passed since the date of issue or renewal of such a document.

8.2.1.10 The document attesting training and experience in accordance with Chapter V of the STCW Code on Training and Qualifications of Masters, Officers and Ratings of Tankers carrying chemicals in bulk shall be equivalent to the certificate referred to in 8.2.1.7, provided it has been recognized by a competent authority. No more than five years shall have passed since the date of issue or renewal of such a document.

8.2.1.11 The certificate shall conform to the model in 8.6.2.

8.2.2 Special requirements for the training of experts

8.2.2.1 Theoretical knowledge and practical abilities shall be acquired as a result of training in theory and practical exercises. The theoretical knowledge shall be tested by an examination. During the refresher and advanced courses exercises and tests shall ensure that the participant takes an active role in the training.

8.2.2.2 The training organizer shall ensure that training instructors have a good knowledge of the subject and shall take into account the latest developments concerning the Regulations and the requirements for training in the transport of dangerous goods. Teaching shall relate closely to practice. In accordance with the approval, the teaching syllabus shall be drawn up on the basis of the objectives referred to in 8.2.2.3.1.1 to 8.2.2.3.1.3 and in 8.2.2.3.3.1 or 8.2.2.3.3.2. Basic training and their refresher courses shall comprise individual practical exercises (see 8.2.2.3.1.1).

8.2.2.3 Organization of training

Initial basic training and the refresher courses shall be organized in the context of basic courses (see 8.2.2.3.1) and if necessary specialization courses (see 8.2.2.3.3). The courses

referred to in 8.2.2.3.1 may comprise three variants: transport of dry cargo, transport in tank vessels and a combination of transport of dry cargo and transport in tank vessels.

8.2.2.3.1 *Basic course*

Basic course on the transport of dry cargo

Prior training: none
Knowledge: ADN in general, except Chapter 3.2, Table C, Chapters 7.2 and 9.3
Authorized for: dry cargo vessel
Training: general 8.2.2.3.1.1 and dry cargo vessels 8.2.2.3.1.2

Basic course on transport by tank vessels

Prior training: none
Knowledge: ADN in general, except Chapter 3.2, Tables A and B, Chapters 7.1, 9.1, 9.2 and sections 9.3.1 and 9.3.2
Authorized for: tank vessels for the transport of substances for which a type N tank vessel is prescribed
Training: general 8.2.2.3.1.1 and tank vessels 8.2.2.3.1.3

Basic course - combination of transport of dry cargo and transport in tank vessels

Prior training: none
Knowledge: ADN in general, except sections 9.3.1 and 9.3.2
Authorized for: dry cargo vessels and tank vessels for the transport of substances for which a type N tank vessel is prescribed
Training: general 8.2.2.3.1.1, dry cargo vessels 8.2.2.3.1.2 and tank vessels 8.2.2.3.1.3

8.2.2.3.1.1 The general part of the basic training course shall comprise at least the following objectives:

General:

- Objectives and structure of ADN.

Construction and equipment:

- Construction and equipment of vessels subject to ADN.

Measurement techniques:

- Measurements of toxicity, oxygen content, explosivity.

Knowledge of products:

- Classification and hazard characteristics of the dangerous goods.

Loading, unloading and transport:

- Loading, unloading, general service requirements and requirements relating to transport.

Documents:

- Documents which must be on board during transport.

Hazards and measures of prevention:

- General safety measures.

Practical exercises:

- Practical exercises, in particular with respect to entry into spaces, use of fire-extinguishers, fire-fighting equipment and personal protective equipment as well as flammable gas detectors, oxygen meters and toximeters.

8.2.2.3.1.2 The “dry cargo vessels” part of the basic training course shall comprise at least the following objectives:

Construction and equipment:

- Construction and equipment of dry cargo vessels.

Treatment of holds and adjacent spaces:

- degassing, cleaning, maintenance,
- ventilation of holds and spaces outside the protected area.

Loading, unloading and transport:

- loading, unloading, general service and transport requirements,
- labelling of packages.

Documents:

- documents which must be on board during transport.

Hazards and measures of prevention:

- general safety measures,
- personal protective and safety equipment.

8.2.2.3.1.3 The “tank vessel” part of the basic training course shall comprise at least the following objectives:

Construction and equipment:

- construction and equipment of tank vessels,
- ventilation,
- loading and unloading systems.

Treatment of cargo tanks and adjacent spaces:

- degassing, cleaning, maintenance,
- heating and cooling of cargo,
- handling of residual cargo tanks.

Measurement and sampling techniques:

- measurements of toxicity, oxygen content and explosivity,
- sampling.

Loading, unloading and transport:

- loading, unloading, general service and transport requirements.

Documents:

- documents which must be on board during transport.

Hazards and measures of prevention:

- prevention and general safety measures,
- spark formation,
- personal protective and safety equipment,
- fires and fire-fighting.

8.2.2.3.2 *Refresher training courses*

Refresher training course on transport of dry cargo

Prior training: valid ADN “dry cargo vessels” or combined “dry cargo vessels/tank vessels” certificate
Knowledge: ADN in general, except Chapter 3.2, Table C, Chapters 7.2 and 9.3
Authorized for: dry cargo vessel
Training: general 8.2.2.3.1.1 and dry cargo vessels 8.2.2.3.1.2

Refresher training course on transport in tank vessels

Prior training: valid ADN “tank vessels” or combined “dry cargo vessels/tank vessels” certificate
Knowledge: ADN in general, except Chapter 3.2, Tables A and B, Chapters 7.1, 9.1 and 9.2 and sections 9.3.1 and 9.3.2
Authorized for: tank vessels for the transport of substances for which a type N tank vessel is prescribed
Training: general 8.2.2.3.1.1 and tank vessels 8.2.2.3.1.3

Refresher training course – combination of transport of dry cargo and transport in tank vessels

Prior training: valid ADN combined “dry cargo vessels and tank vessels” certificate
Knowledge: ADN in general, including sections 9.3.1 and 9.3.2
Authorized for: dry cargo vessels and tank vessels for the transport of substances for which a type N tank vessel is prescribed
Training: general 8.2.2.3.1.1, dry cargo vessels 8.2.2.3.1.2 and tank vessels 8.2.2.3.1.3

8.2.2.3.3 Specialization courses

Specialization course on gases

Prior training: valid ADN “tank vessels” or combined “dry cargo vessels/tank vessels” certificate
Knowledge: ADN, in particular knowledge relating to loading, transport, unloading and handling of gases
Authorization for: tank vessels for the transport of substances for which a type G tank vessel is required and transport in type G of substances for which a

Training: type C is required with cargo tank design 1 required in column (7) of Table C of Chapter 3.2.
gases 8.2.2.3.3.1

Specialization course on chemicals

Prior training: valid ADN “tank vessels” or combined “dry cargo vessels/tank vessels” certificate
Knowledge: ADN, in particular knowledge relating to loading, transport, unloading and handling of chemicals
Authorized for: tank vessels for the transport of substances for which a type C tank vessel is required
Training: chemicals 8.2.2.3.3.2

8.2.2.3.3.1 The specialization course on gases shall comprise at least the following objectives:

Knowledge of physics and chemistry:

- laws of gases, e.g. Boyle, Gay-Lussac and fundamental law
- partial pressures and mixtures, e.g. definitions and simple calculations, pressure increase and gas release from cargo tanks
- Avogadro’s number and calculation of masses of ideal gas and application of the mass formula
- density and volume of liquids, e.g. density, volume in terms of temperature increase and maximum degree of filling
- critical pressure and temperature
- polymerization, e.g. theoretical and practical questions, conditions of carriage
- vaporization, condensation, e.g. definition, liquid volume and vapour volume ratio
- mixtures, e.g. vapour pressure, composition and hazard characteristics
- chemical bonds and formulae.

Practice:

- flushing of cargo tanks, e.g. flushing in the event of a change of cargo, addition of air to the cargo, methods of flushing (degassing) before entering cargo tanks
- sampling
- danger of explosion
- health risks
- gas concentration measures, e.g. which apparatus to use and how to use it
- monitoring of closed spaces and entry to these spaces
- certificates for degassing and permitted work
- degree of filling and over-filling
- safety installations
- pumps and compressors.

Emergency measures:

- physical injury, e.g. substances on the skin, breathing in gas, assistance
- irregularities relating to the cargo, e.g. leak in a connection, over-filling, polymerization and hazards in the vicinity of the vessel.

8.2.2.3.3.2 The specialization course on chemicals shall comprise at least the following objectives:

Knowledge of physics and chemistry:

- chemical products, e.g. molecules, atoms, physical state, acids, bases, oxidation

- density, pressure and volume of liquids, e.g. density, volume and pressure in terms of temperature increase, maximum degree of filling
- critical temperature
- polymerization, e.g. theoretical and practical questions, conditions of carriage
- mixtures, e.g. vapour pressure, composition and hazard characteristics
- chemical bonds and formulae.

Practice:

- cleaning of cargo tanks, e.g. degassing, washing, residues, cargo residues
- loading and unloading, e.g. vapour pipes systems, rapid closing devices, effects of temperature
- sampling
- danger of explosion
- health risks
- gas concentration measures, e.g. which apparatus to use and how to use it
- monitoring of closed spaces and entry to these spaces
- certificates for degassing and permitted work
- degree of filling and over-filling
- safety installations
- pumps and compressors.

Emergency measures:

- physical injury, e.g. contact with the cargo, breathing in gas, assistance
- irregularities relating to the cargo, e.g. leak in a connection, over-filling, polymerization and hazards in the vicinity of the vessel.

8.2.2.3.4 *Refresher and advanced training courses*

Refresher and advanced training course on gases

Prior training:	valid ADN ‘gases’ and ‘tank vessels’ certificate or combined ‘dry cargo/tank vessels’ certificate;
Knowledge:	ADN, in particular, loading, transport, unloading and handling of gases;
Authorization for:	tank vessels for the transport of substances for which a type G tank vessel is required and transport in type G of substances for which a type C is required with cargo tank design 1 required in column (7) of Table C of Chapter 3.2.
Training:	gases 8.2.2.3.3.1.

Refresher and advanced training course on chemicals

Prior training:	valid ADN “chemicals” and “tank vessels” certificate or combined “dry cargo/tank vessels” certificate;
Knowledge:	ADN, in particular, loading, transport, unloading and handling of gases;
Authorization for:	tank vessels for the transport of substances for which a type C tank vessel is required;
Training:	chemicals 8.2.2.3.3.2.

8.2.2.4 *Planning of refresher and specialization courses*

The following minimum periods of training shall be observed:

Basic “dry cargo vessels course”	24 lessons of 45 minutes each
Basic “tank vessels” course	24 lessons of 45 minutes each
Basic combined course	32 lessons of 45 minutes each
Specialization course on gases	16 lessons of 45 minutes each
Specialization course on chemicals	16 lessons of 45 minutes each

Each day of training may comprise not more than eight lessons.

If the theoretical training is by correspondence, equivalences to the above-mentioned lessons shall be determined. Training by correspondence shall be completed within a period of nine months.

Approximately 30% of basic training shall be devoted to practical exercises. Practical exercises shall, where possible, be undertaken during the period of theoretical training; in any event, they shall be completed not later than three months following the completion of theoretical training.

8.2.2.5 *Planning of refresher and advanced training courses*

The refresher and advanced training courses shall take place before the expiry of the deadline referred to in 8.2.1.4, 8.2.1.6 or 8.2.1.8.

The following minimum periods of training shall be observed:

Basic refresher course:

- dry cargo vessels 16 lessons of 45 minutes each
- tank vessels 16 lessons of 45 minutes each
- combined dry cargo vessels and tank vessels 16 lessons of 45 minutes each

Specialization refresher course on gases 8 lessons of 45 minutes each

Specialization refresher course on chemicals 8 lessons of 45 minutes each

Each day of training may comprise not more than eight lessons.

Approximately 50% of basic training shall be devoted to practical exercises. Practical exercises shall, where possible, be undertaken during the period of theoretical training; in any event, they shall be completed not later than three months following the completion of theoretical training.

8.2.2.6 *Approval of training courses*

8.2.2.6.1 Training courses shall be approved by the competent authority.

8.2.2.6.2 Approval shall be granted only on written application.

8.2.2.6.3 Applications for approval shall be accompanied by:

- (a) the detailed course curriculum showing the course topics and the length of time to be devoted to them, as well as the teaching methods envisaged;
- (b) the roster of training instructors, listing their qualifications and the subjects to be taught by each one;

- (c) information on classrooms and teaching materials, as well as on the facilities available for practical exercises;
- (d) enrolment requirements, e.g. the number of participants.

8.2.2.6.4 The competent authority shall be responsible for monitoring training courses and examinations.

8.2.2.6.5 The approval comprises the following conditions, *inter alia*:

- (a) training courses shall conform to the information accompanying the application for approval;
- (b) the competent authority may send inspectors to attend training courses and examinations;
- (c) the timetables for the various training courses shall be notified in advance to the competent authority.

Approval shall be granted in writing. It may be withdrawn in the event of failure to comply with the conditions of approval.

8.2.2.6.6 The approval document shall indicate whether the course in question is a basic training course, a specialization course or a refresher and advanced training course.

8.2.2.6.7 If, after approval is granted, the training body wishes to change conditions affecting the approval, he shall seek the prior agreement of the competent authority. This provision shall apply in particular to amendments to syllabuses.

8.2.2.6.8 Training courses shall take account of the current developments in the various subjects taught. The course organizer shall be responsible for ensuring that recent developments are brought to the attention of, and properly understood by, training instructors.

8.2.2.7 Examinations

8.2.2.7.0 The examination shall be organized by the competent authority or by an examining body designated by the competent authority. The examining body shall not be a training provider.

The examining body shall be designated in writing. This approval may be of limited duration and should be based on the following criteria:

- Competence of the examining body;
- Specifications of the form of the examinations the examining body is proposing;
- Measures intended to ensure that examinations are impartial;
- Independence of the body from all natural or legal persons employing ADN experts.

8.2.2.7.1 Basic training courses

8.2.2.7.1.1 After initial training and ADN basic training examination shall be taken. This examination shall be held either immediately after the training or within six months following the completion of such training.

- 8.2.2.7.1.2 In the examination the candidate shall furnish evidence that, in accordance with the basic training course, he has the knowledge, understanding and capabilities required of an expert on board a vessel.
- 8.2.2.7.1.3 The Administrative Committee shall establish a list of questions comprising the objectives set out in 8.2.2.3.1.1 to 8.2.2.3.1.3. The examination questions shall be selected from this list. The candidate shall not have advance knowledge of the questions selected.
- 8.2.2.7.1.4 The model attached to the list of questions is to be used to compile the examination questions.
- 8.2.2.7.1.5 The examination shall be written. Candidates shall be asked 30 questions. The examination shall last 60 minutes. It is deemed to have been passed if at least 25 of the 30 questions have been answered correctly. During the examination, candidates may consult the texts of regulations on dangerous goods and CEVNI.
- 8.2.2.7.2 *Specialization course on gases and chemicals*
- 8.2.2.7.2.1 Candidates who are successful in the ADN basic training examination may apply for enrolment in a “gases” and/or “chemicals” specialization course, to be followed by an examination. The examination shall be based on the Administrative Committee’s list of questions.
- 8.2.2.7.2.2 During the examination the candidate shall furnish proof that, in accordance with the “gases” and/or “chemicals” specialization course, he has the knowledge, understanding and capabilities required of the expert on board vessels carrying gases or chemicals, respectively.
- 8.2.2.7.2.3 The Administrative Committee shall prepare a list of questions for the examination, comprising the objectives set out in 8.2.2.3.3.1 or 8.2.2.3.3.2. The examination questions shall be selected from the list. The candidate shall not have advance knowledge of the questions selected.
- 8.2.2.7.2.4 The model attached to the list of questions is to be used to compile the examination questions.
- 8.2.2.7.2.5 The examination shall be written.

The candidate is to be asked 30 multiple-choice questions and one substantive question. The examination shall last a total of 150 minutes, of which 60 minutes for the multiple-choice questions and 90 minutes for the substantive questions.

The examination shall be marked out of a total of 60, of which 30 marks will go to the multiple-choice questions (one mark per question) and 30 to the substantive question (the distribution of marks is left to the appreciation of the competent authority). A total of 44 marks must be achieved to pass. However, not less than 20 marks must be obtained in each subject. If the candidate obtains 44 but does not achieve 20 in one subject, the subject in question may be set in a resit.

The texts of regulations and technical literature are permitted during the examination.

8.2.2.8 *ADN specialized knowledge certificate*

The issue and renewal of the ADN specialized knowledge certificate conforming to 8.6.2, shall be the responsibility of the competent authority or a body authorized by the competent authority.

Certificates shall be issued to:

- candidates who have attended a basic or specialized training course and have passed the examination;
- candidates who have taken part in a refresher or advanced training course.

Candidates who have obtained the 'gases' and/or 'chemicals' specialized training certificate shall be issued with a new certificate containing all the certificates relating to the basic and specialized training courses. The validity of the new certificate shall be five years as from the date of the basic training examination.

If the refresher and advanced training course was not fully completed before the expiry of the period of validity of the certificate, a new certificate shall not be issued until the candidate has completed a further initial basic training course and passed an examination referred to in 8.2.2.7 above.

If a new certificate is issued following attendance at a specialized or refresher and advanced training course, and the previous certificate was issued by another competent authority or by a body authorized by another competent authority, the previous certificate shall be retained and returned to the authority or body that issued it.

CHAPTER 8.3

MISCELLANEOUS REQUIREMENTS TO BE COMPLIED WITH BY THE CREW OF THE VESSEL

8.3.1 Persons authorized on board

8.3.1.1 Only the following persons are authorized to be on board:

- (a) members of the crew;
- (b) persons who, although not being members of the crew, normally live on board; and
- (c) persons who are on board for official reasons.

8.3.1.2 The persons referred to in 8.3.1.1 (b) are not authorized to remain in the protected area of dry cargo vessels or in the cargo area of tank vessels except for short periods.

8.3.1.3 When the vessel is required to carry two blue cones or two blue lights in accordance with column (19) of Table C of Chapter 3.2, persons under 14 years of age are not permitted on board.

8.3.2 Portable lamps

On board dry cargo vessels, the only portable lamps permitted in the protected area are lamps having their own source of power.

On board tank vessels, the only portable lamps permitted in the cargo area and on the deck outside the cargo area are lamps having their own source of power.

They shall be of the certified safe type.

8.3.3 Admittance on board

No unauthorized person shall be permitted on board. This prohibition shall be displayed on notice boards at appropriate places.

8.3.4 Prohibition on smoking, fire and naked light

Smoking on board the vessel is prohibited. This prohibition shall be displayed on notice boards at appropriate places.

This prohibition does not apply to the accommodation or the wheelhouse provided their windows, doors, skylights and hatches are closed.

8.3.5 Danger caused by work on board

No repair or maintenance work requiring the use of an open flame or electric current or liable to cause sparks may be carried out

- on board dry cargo vessels in the protected area or on the deck less than 3m forward or aft of that area;
- on board tank vessels.

This requirement does not apply:

when dry cargo vessels are furnished with an authorization from the competent authority or a certificate attesting to the totally gas-free condition of the protected area;

when tank vessels are furnished with an authorization from the competent authority or a certificate attesting to the totally gas-free condition of the vessel;

- to berthing operations.

Such work on board tank vessels may be undertaken without permission in the service spaces outside the cargo area, provided the doors and openings are closed and the vessel is not being loaded, unloaded or gas-freed.

The use of chromium vanadium steel screwdrivers and wrenches or screwdrivers and wrenches of equivalent material from the point of view of spark formation is permitted.

CHAPTER 8.4

(Reserved)

CHAPTER 8.5

(Reserved)

CHAPTER 8.6

DOCUMENTS

8.6.1 Certificate of approval

8.6.1.1 Model for a certificate of approval for dry cargo vessels

Competent authority:		1
Space reserved for the emblem and name of the State		
ADN certificate of approval No.:		
1.	Name of vessel	
2.	Official number	
3.	Type of vessel	
4.	Additional requirements: vessel referred to in 7.1.2.19.1 ¹ vessel referred to in 7.2.2.19.3 ¹ The vessel complies with the additional rules of construction referred to in 9.1.0.80 to 9.1.0.95/ 9.2.0.80 to 9.2.0.95 for double hull vessels ¹	
5.	Permitted derogations ¹ :	
.....		
.....		
.....		
.....		
6.	The validity of this certificate of approval expires on	(date)
7.	The previous certificate of approval No. was issued on	
	by	(competent authority)
8.	The vessel is approved for the carriage of dangerous goods following:	
	- inspection on ¹	(date)
	- certification by a recognized classification society ¹	
	Name of the classification society ¹	(date)
9.	Subject to permitted equivalence: ¹	
.....		
.....		
.....		
10.	Subject to special authorizations: ¹	
.....		
.....		
11.	Issued at:	on
	(place)	(date)
12.	(Stamp)	
		(competent authority)
	
		(signature)

¹ Delete as appropriate

Extension of the validity of the certificate of approval

13. The validity of this certificate is extended under Chapter 1.16 of ADN

until
(date)

14. on
(place) (date)

15. (Stamp)
(competent authority)

.....
(signature)

8.6.1.3 Model for a certificate of approval for tank vessels

1

Competent authority:
 Space reserved for the emblem and name of the State

ADN certificate of approval No.:

1. Name of vessel
2. Official number
3. Type of vessel
4. Type of tank vessel
5. Cargo tank designs
 1. Pressure cargo tanks^{1 2}
 2. Closed cargo tanks^{1 2}
 3. Open cargo tanks with flame arresters^{1 2}
 4. Open cargo tanks^{1 2}
6. Types of cargo tanks
 1. Independent cargo tanks^{1 2}
 2. Integral cargo tanks^{1 2}
 3. Cargo tank wall distinct from the hull^{1 2}
7. Opening pressure of high-velocity vent valves/safety valves kPa^{1 2}
8. Additional equipment:
 - Sampling device
 - closedyes/no^{1 2}
 - partly closed yes/no^{1 2}
 - sampling opening yes/no^{1 2}
 - Water-spray system yes/no^{1 2}
 - Internal pressure alarm 40 kPa yes/no^{1 2}
 - Cargo heating system:
 - possibility of cargo heating from shore yes/no^{1 2}
 - cargo heating installation on board yes/no^{1 2}
 - Cargo refrigeration system yes/no^{1 2}
 - Cargo pump-room below deck yes/no¹
 - Pressure relief device yes/no^{1 2} in
 - Gas supply/return line according to
 - pipng and installation heated yes/no^{1 2}
 - Conforms to the rules of construction resulting from the remark(s) of column (20) of Table C of Chapter 3.2^{1 2}
9. Electrical equipment:
 - Temperature class:
 - Explosion group:
10. Loading rate: m³/h¹ or see loading instructions¹

¹ Delete as appropriate.

² If the tanks are not all of the same condition, see page 3.

- 11. Permitted mass density:
- 12. Additional observations ¹
.....
- 13. The validity of this certificate of approval expires on (date)
- 14. The previous certificate of approval No. was issued on
by (competent authority)
- 15. The vessel is approved for the carriage of dangerous goods listed in the attestation
attached to this certificate following:
 - inspection on¹ (date).....
 - certification by a recognized classification society¹
 - Name of the classification society¹..... (date)
- 16. Subjected to permitted equivalence:¹
.....
.....
- 17. Subject to special authorizations:¹
.....
.....
- 18. Issued at: on
(place) (date)
- 19. (Stamp)
(competent authority)
.....
(signature)

¹ Delete as appropriate

Extension of the validity of the certificate of approval

- 20. The validity of this certificate is extended under Chapter 1.16 of ADN

Until
(date)
- 21. on
(place) (date)
- 22. (Stamp)
(competent authority)
.....
(signature)

If the cargo tanks of the vessel are not all of the same type or the same condition or the equipment is not the same, their type, their condition and their equipment shall be indicated below:

Cargo tank number	1	2	3	4	5	6	7	8	9	10	11	12
pressure cargo tank												
closed cargo tank												
open cargo tank with flame arrester												
open cargo tank												
independent cargo tank												
integral cargo tank												
cargo tank wall distinct from the hull												
opening pressure of the high-velocity vent valve in kPa												
closed sampling device												
partly closed sampling device												
sampling opening												
water-spray system												
internal pressure alarm 40 kPa												
possibility of cargo heating from shore												
cargo heating installation on board												
cargo refrigeration installation												
gas supply/return line according to 9.3.2.22.5 or 9.3.3.22.5												
gas supply line and heated installation												
Conforms to the rules of construction resulting from the remark(s) of column (20) of Table C of Chapter 3.2												

8.6.1.4 Model for a provisional certificate of approval for tank vessels

1

Competent authority:
 Space reserved for the emblem and name of the State

ADN provisional certificate of approval No:

1. Name of vessel
2. Official number
3. Type of vessel
4. Type of tank vessel
5. Cargo tank designs
 1. Pressure cargo tanks 1²
 2. Closed cargo tanks 1²
 3. Open cargo tanks with flame arresters 1²
 4. Open cargo tanks 1²
6. Types of cargo tanks
 1. Independent cargo tanks 1²
 2. Integral cargo tanks 1²
 3. Cargo tank wall distinct from the hull 1²
7. Opening pressure of high-velocity vent valves/safety valves kPa 1²
8. Additional equipment:
 - Sampling device
 - closed yes/no¹²
 - partly closed yes/no¹²
 - sampling opening yes/no¹²
 - Water-spray system yes/no¹²
 - Internal pressure alarm 40 kPa yes/no¹²
 - Cargo heating system:
 - possibility of cargo heating from shore yes/no¹²
 - cargo heating installation on board yes/no¹²
 - cargo refrigeration system yes/no¹²
 - cargo pump-room below deck yes/no¹
 - Pressure relief device yes/no¹² in
 - Gas supply/return line according to
 - pipings and installation heated yes/no¹²
 - Conforms to the rules of construction resulting from the remark(s) of column (20) of Table C of Chapter 3.2¹²
9. Electrical equipment:
 - Temperature class:
 - Explosion group:
10. Loading rate m³/h¹ or see loading instructions¹

¹ Delete as appropriate.

² If the tanks are not all of the same type, see page 3

11.	Permitted mass density:
12.	Additional observations: ¹

13.	The provisional certificate of approval is valid.....
13.1	until ¹
13.2	for a single journey from ¹ to
14.	Issued at on
	(place) (date)
15.	(Stamp)
	(competent authority)

	(signature)

¹ Delete as appropriate.

***NOTE:** This model provisional certificate of approval may be replaced by a single certificate model combining a provisional certificate of inspection and the provisional certificate of approval, provided that this single certificate model contains the same particulars as the model above and is approved by the competent authorities.*

If the cargo tanks of the vessel are not all of the same type or the same condition or the equipment is not the same, their type, their condition and their equipment shall be indicated below:

Cargo tank number	1	2	3	4	5	6	7	8	9	10	11	12
pressure cargo tank												
closed cargo tank												
open cargo tank with flame arrester												
open cargo tank												
independent cargo tank												
integral cargo tank												
cargo tank wall distinct from the hull												
opening pressure of the high-velocity vent valve in kPa												
closed sampling device												
partly closed sampling device												
sampling opening												
water-spray system												
internal pressure alarm 40 kPa												
possibility of cargo heating from shore												
cargo heating installation on board												
cargo refrigeration installation												
gas supply/return line according to 9.3.2.22.5 or 9.3.3.22.5												
gas supply line and heated installation												
Conforms to the rules of construction resulting from the remark(s) of column (20) of Table C of Chapter 3.2												

8.6.2 Certificate of special knowledge of ADN according to 8.2.1.3, 8.2.1.5 or 8.2.1.7

(Format: A6, Colour: orange)

(Space reserved for the emblem of State,
competent authority)

ADN certificate

of special knowledge of ADN

No. of certificate:

Name

First name(s):

Born on:

Nationality:

Signature of holder:

The holder of this certificate has special knowledge of
ADN

The certificate is valid for special knowledge of ADN
according to

8.2.1.3 (dry cargo vessels)*

8.2.1.3 (tanks vessels)*

8.2.1.5*

8.2.1.7*

until:

Issued by:

Date:

(Stamp)

Signature:

* Delete as appropriate.

(Recto)

(Verso)

8.6.3 Checklist ADN

1

Checklist ADN

concerning the observance of safety provisions and the implementation of the necessary measures for loading/unloading

- Particulars of vessel

..... No.
 (name of vessel) (official number)

 (vessel type)

- Particulars of loading or unloading operations

.....
 (shore loading or unloading installation) (place)

 (date) (time)

- Particulars of the cargo

Quantity m ³	Name of product	Identification number	Class
.....
.....
.....

- Particulars of last cargo*

Name of product	Identification number	Class
.....
.....
.....

* To be filled in only if vessel is to be loaded.

2							
Loading/unloading rate (not to be filled in if vessel is to be loaded with gas)							
Name of substance	Cargo tank number	agreed rate of loading/unloading					
		start		half way		end	
		rate m ³ /h	quantity m ³	rate m ³ /h	quantity m ³	rate m ³ /h	quantity m ³
.....
.....
.....

Will the cargo piping be drained after loading or unloading by stripping or by blowing residual quantities to the shore installation/to the vessel?*

by blowing*
by stripping*

If drained by blowing, how?

.....
(e.g. air, inert gas, sleeve)

..... kPa
(permissible maximum pressure in the cargo tank)

..... litres
(estimated residual quantity)

Questions to the master or the person mandated by him and the person in charge at the loading/unloading place

Loading/unloading may only be started after all questions on the checklist have been checked off by “X”, i.e. answered with YES and the list has been signed by both persons.

Non-applicable questions have to be deleted.

If not all questions can be answered with YES, loading/unloading is only allowed with consent of the competent authority.

* Delete as appropriate.

	vessel	3 loading/ unloading place
1. Is the vessel permitted to carry this cargo?	O*	O*
2. <i>(Reserved)</i>		
3. Is the vessel well moored in view of local circumstances?	O	–
4. Have suitable means been provided at the fore and at the aft of the vessel, for boarding or leaving, including in cases of emergency?	O	O
5. Are the escape routes and the loading/unloading place adequately lighted?	O	O
6. Vessel/shore connection		
6.1 Are the cargo hoses between vessel and shore in satisfactory condition?	–	O
Are these hoses correctly connected?	–	O
6.2 Are all the connecting flanges fitted with suitable gaskets?	–	O
6.3 Are all the connecting bolts fitted and tightened?	O	O
6.4 Are the shoreside loading arms free to move in all directions and do the hoses have enough room for easy movement?	–	O
7. Are all flanges of the connections of the pipes for loading and unloading and of the vapour pipe not in use, correctly blanked off?	O	O
8. Are suitable means of collecting leakages placed under the pipe connections which are in use?	O	O
9. Are the movable connecting pieces between the ballast and bilge piping on the one hand and the pipes for loading and unloading on the other hand disconnected?	O	-
10. Is continuous and suitable supervision of loading/unloading ensured for the whole period of the operation?	O	O
11. Is communication between vessel and shore ensured?	O	O

* *To be filled in only if vessel is to be loaded.*

		vessel	loading/ unloading place 4
12.1	For the loading of the vessel, is the vapour pipe, where required, or if it exists, connected with the shore gas return line?	O	O
12.2	Is it ensured that the shore installation is such that the pressure at the connecting point cannot exceed the opening pressure of the high-velocity vent valves?	–	O*
12.3	When anti-explosion protection is required in Chapter 3.2, Table C, column (17) does the shore installation ensure that its venting pipe or pressure compensation pipe is such that the vessel is protected against detonations and flame fronts from the shore.	–	O
13.	Is it know what actions are to be taken in the event of an “Emergency-stop” and an “Alarm”?	O	O
14.	Check on the most important operational requirements: <ul style="list-style-type: none"> – Are the required fire extinguishing systems and appliances operational? – Have all valves and other closing devices been checked for correct open - or closed position? – Has smoking been generally prohibited? – Are the flame-operated heating, cooking and cooling applications on board turned off? – Are the liquefied gas installations shut off at the main check valve? – Is the voltage cut off from the radar installations? – Is all electrical equipment marked red switched off? – Are all windows and doors closed? 	O O O O O O O O	O O O – – – – –
15.1	Has the starting working pressure of the vessels cargo discharge pump been adjusted to the permissible working pressure of the shore installation?	O	–
15.2	Has the starting working pressure of the shore pump been adjusted to the permissible working pressure of the on board installation?	–	O
16.	Is the liquid level alarm-installation operational?	O	–

		vessel	5 loading/ unloading place		
17.	Is the following system plugged in, in working order and tested? Overflow prevention device (only when loading the vessel) Device for switching off the on-board pump from the shore facility (only when unloading the vessel)	 <input type="radio"/> <input type="radio"/>	 <input type="radio"/> <input type="radio"/>		
18.	To be filled in only in the case of loading or unloading of substances for the carriage of which a vessel of the closed type or a vessel of the open type with flame arrester is required. Are the cargo tank hatches and cargo tank inspection, gauging and sampling openings closed or protected by flame arresters in good condition?	 <input type="radio"/>	 –		
<p>Checked, filled in and signed</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>for the vessel:</p> <p>.....</p> <p style="text-align: center;">name (in capital letters)</p> <p>.....</p> <p style="text-align: center;">(signature)</p> </td> <td style="width: 50%; vertical-align: top;"> <p>for the installation of loading and unloading</p> <p>.....</p> <p style="text-align: center;">name (in capital letters)</p> <p>.....</p> <p style="text-align: center;">(signature)</p> </td> </tr> </table>				<p>for the vessel:</p> <p>.....</p> <p style="text-align: center;">name (in capital letters)</p> <p>.....</p> <p style="text-align: center;">(signature)</p>	<p>for the installation of loading and unloading</p> <p>.....</p> <p style="text-align: center;">name (in capital letters)</p> <p>.....</p> <p style="text-align: center;">(signature)</p>
<p>for the vessel:</p> <p>.....</p> <p style="text-align: center;">name (in capital letters)</p> <p>.....</p> <p style="text-align: center;">(signature)</p>	<p>for the installation of loading and unloading</p> <p>.....</p> <p style="text-align: center;">name (in capital letters)</p> <p>.....</p> <p style="text-align: center;">(signature)</p>				

Explanation

Question 3

“Well moored” means that the vessel is fastened to the pier or the cargo transfer station in such a way that, without intervention of a third person, movements of the vessel in any direction that could hamper the operation of the cargo transfer gear will be prevented. Established or predictable variations of the water-level at that location and special factors have to be taken into account.

Question 4

It must be possible to board or escape from the vessel at any time. If there is none or only one protected escape route available at the shoreside for a quick escape from the vessel in case of emergency, a suitable means of escape has to be provided on the vessel side (e.g. a lowered dinghy).

Question 6

A valid inspection certificate for the loading/unloading hoses must be available on board. The material of the hoses must be able to withstand the expected loads and be suitable for cargo transfer of the respective substances. The term cargo hoses includes hoses as well as the shoreside loading/discharging arms. The cargo transfer hoses between vessel and shore must be placed so that they cannot be damaged by variations of the water-level, passing vessels and/or loading/unloading operations. All flange connections are to be fitted with appropriate gaskets and sufficient bolt connections in order to exclude the possibility of leakage.

Question 10

Loading/unloading must be supervised on board and ashore so that dangers which may occur in the vicinity of cargo hoses can be recognized immediately. When supervision is effected by additional technical means it must be agreed between the shore installation and the vessel how it is to be ensured.

Question 11

For a safe loading/unloading operation good communications between vessel and shore are required. For this purpose telephone and radio equipment may be used only if of an explosion protected type and located within reach of the supervisor.

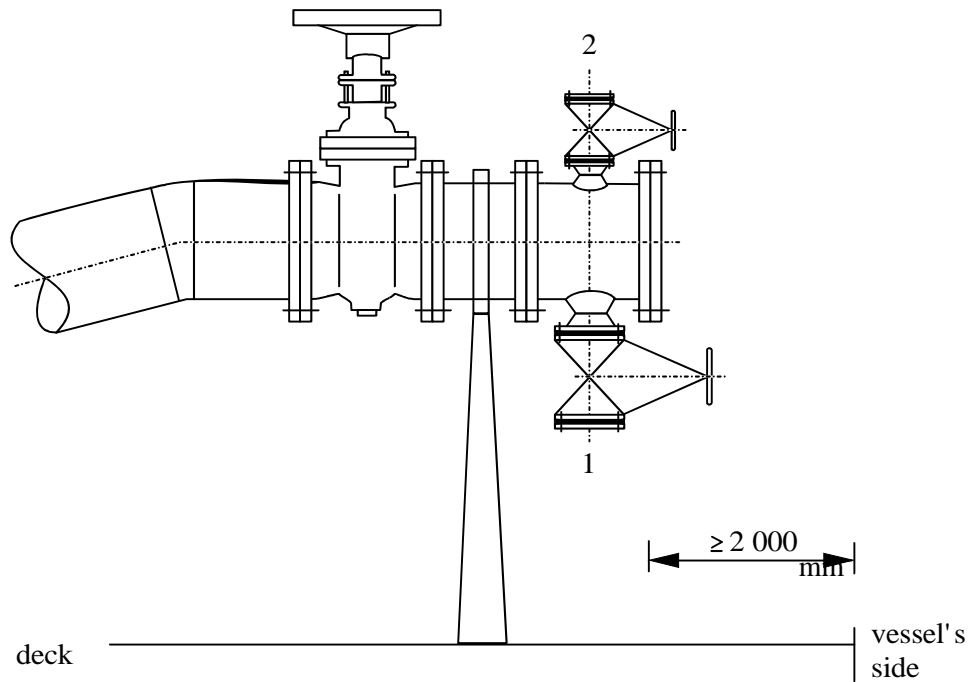
Question 13

Before the start of the loading/unloading operation the representative of the shore installation and the master or the person mandated by him must agree on the applicable procedure. The specific properties of the substances to be loaded/unloaded have to be taken into account.

8.6.4 Discharge of residual quantities and stripping systems

NOTE: It is not necessary to apply this section. The date of application will be defined later.

8.6.4.1 Device for the discharge of residual quantities



1. Connection for the discharge of residual quantities
2. Connection of the shore installation intended for blowing residual quantities to the short installation by means of a gas

8.6.4.2 *Test of the stripping system*

8.6.4.2.1 Before the start of the test, the cargo tanks and their piping shall be clean. The cargo tanks shall be safe for entry.

8.6.4.2.2 During the test, the trim and list of the vessel shall not exceed normal operating values.

8.6.4.2.3 During the test, a back pressure of not less than 300 kPa (3 bar) shall be maintained at the device for discharge of residual quantities fitted on the pipe for unloading.

8.6.4.2.4 The test shall comprise :

- (a) The filling of the cargo tank with water until the suction intake inside the tank is submerged;
- (b) The pumping out of the water and the emptying of the cargo tank and the corresponding piping by means of the tank's stripping system;
- (c) The collection of the remaining water at the following points:
 - The cargo tank suction intake;
 - The bottom of the cargo tank where water has collected;
 - The lowest point drain of the cargo pump;
 - At all the lowest points of the piping associated with the cargo tank up to the device for the discharge of residual quantities.

8.6.4.2.5 The quantity of water collected as described in 8.6.4.2.4 (c) shall be measured precisely and noted in the test certificate referred to in 8.6.4.3.

8.6.4.2.6 The competent authority or the recognized classification society shall set out all the operations required for the test in the test certificate.

This certificate shall include at least the following data:

- trim of the vessel during the test;
- list of the vessel during the test;
- tank unloading order;
- back pressure at the device for the discharge of residual quantities;
- residual quantity per tank;
- residual quantity per piping system;
- duration of the stripping operation;
- cargo tank plan, duly completed.

8.6.4.3 Certificate for the test of the stripping system

Certificate for the test of the stripping system

1. Name of vessel:

2. Official number:

3. Type of tank vessel:

4. Number of certificate of approval:

5. Date of test:

6. Place of test:

7. Number of cargo tanks:

8. The following residual quantities were measured during the test

Cargo tank 1:litres	Cargo tank 2:litres
Cargo tank 3:litres	Cargo tank 4:litres
Cargo tank 5:litres	Cargo tank 6:litres
Cargo tank 7:litres	Cargo tank 8:litres
Cargo tank 9:litres	Cargo tank 10:litres
Cargo tank 11:litres	Cargo tank 12:litres
Slop tank 1:litres	Slop tank 2 :litres
Slop tank 3: litres	
Piping system 1:litres	
Piping system 2:litres	

9. During the test, the back pressure at the device for the discharge of residual quantities waskPa.

10. The cargo tanks were discharged in the following order:

tank...,	tank...,	tank...,	tank...,	tank...,
tank...,	tank...,	tank...,	tank...,	tank...,

11. During the test, the trim of the vessel wasm
and the list of the vessel wasm

12. The total duration of the stripping operation was..... h.

.....
(date) (signature)